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Sample assessment 2020

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Stimulus book

# Earth & Environmental Science

Paper 2



Queensland  
Government



Queensland Curriculum  
& Assessment Authority

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## Stimulus 1

The table below shows the projected risk of species extinction (%) for the Mediterranean region by 2080.

Species group	Global climate change scenario					
	2 °C		3.2 °C		4.5 °C	
	No dispersal <sup>1</sup>	With dispersal <sup>2</sup>	No dispersal	With dispersal	No dispersal	With dispersal
Plants	36	36	55	55	69	69
Birds	21	10	35	22	49	36
Mammals	29	16	45	30	60	45
Amphibians	26	26	43	43	57	57
Reptiles	16	16	30	30	43	43

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<sup>1</sup> No dispersal: species remain within their current area/ecosystem

<sup>2</sup> With dispersal: species move away from their current area/ecosystem

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## Stimulus 2

Figures A, B and C show the average number of cyclones that occur each year off the east coast of Australia during different periods between the years 1969–2016.

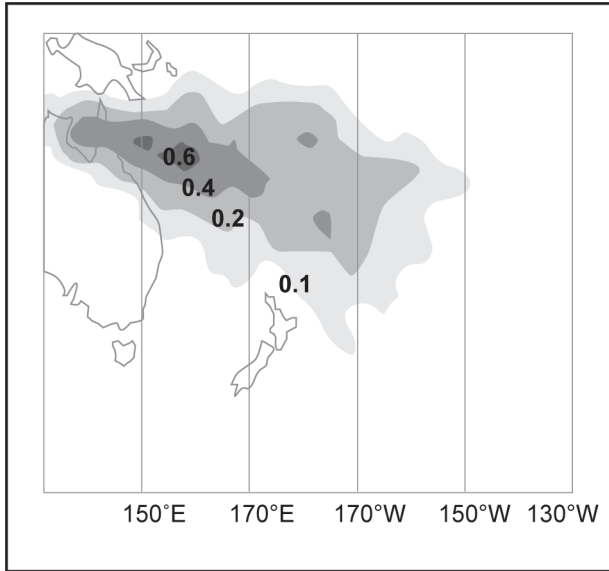


Figure A

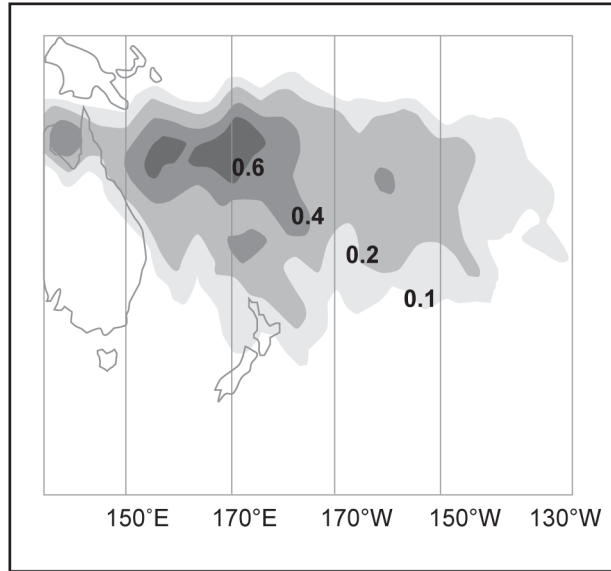


Figure B

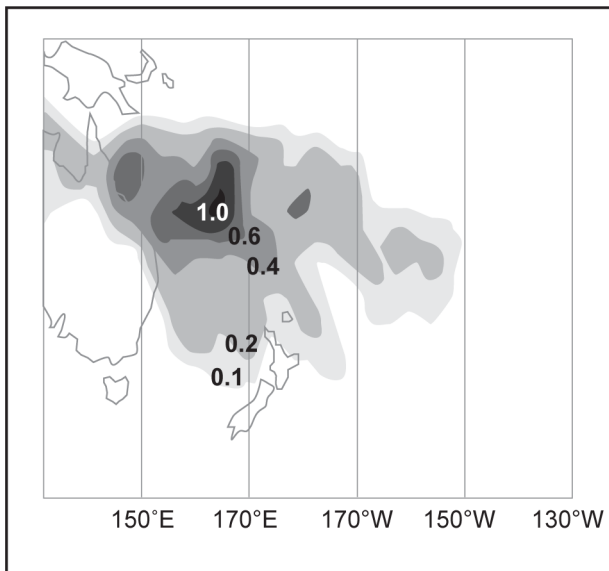
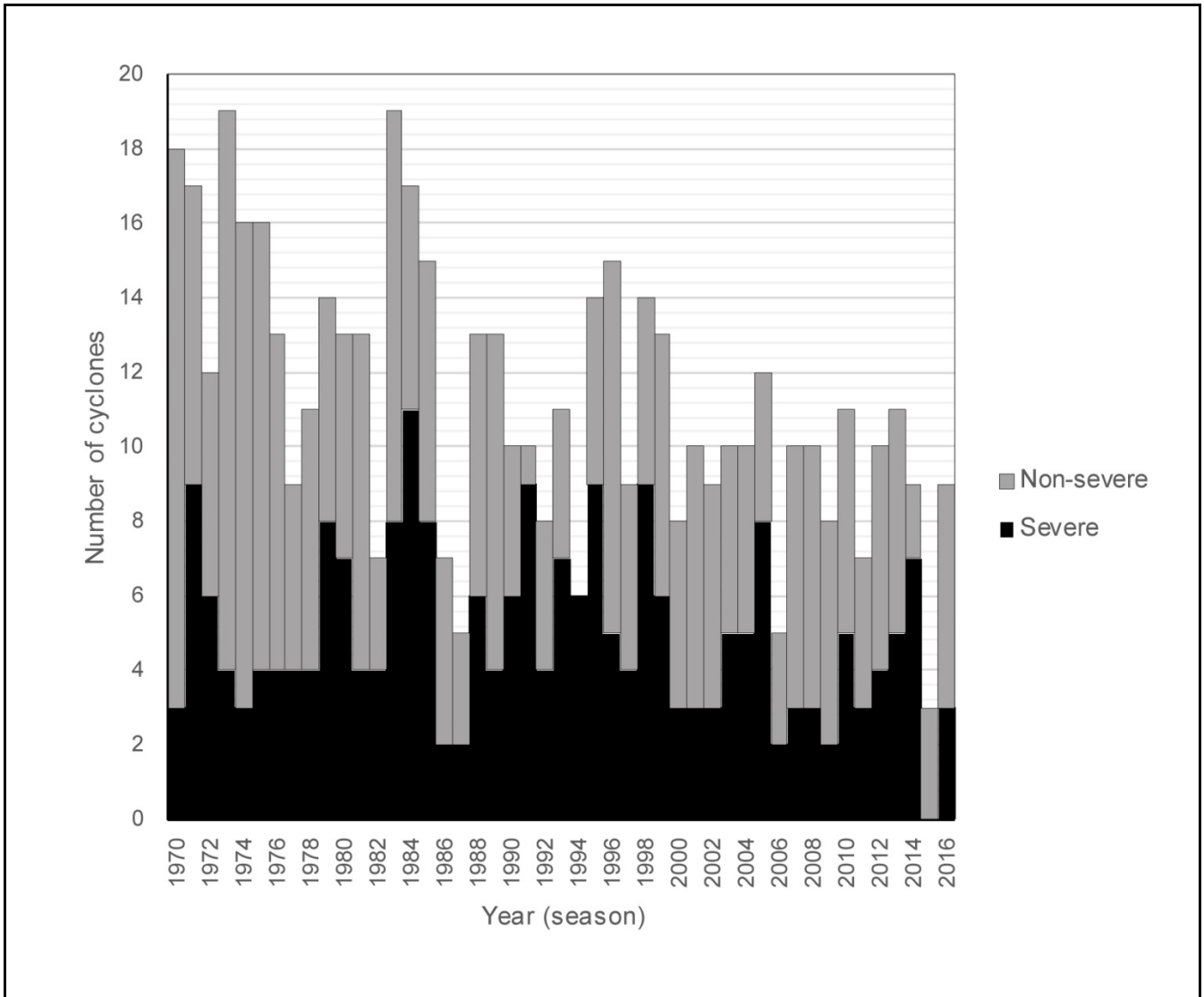


Figure C

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## Stimulus 3

The graph below illustrates the frequency of severe and non-severe cyclones across Australia from 1970 to 2016.

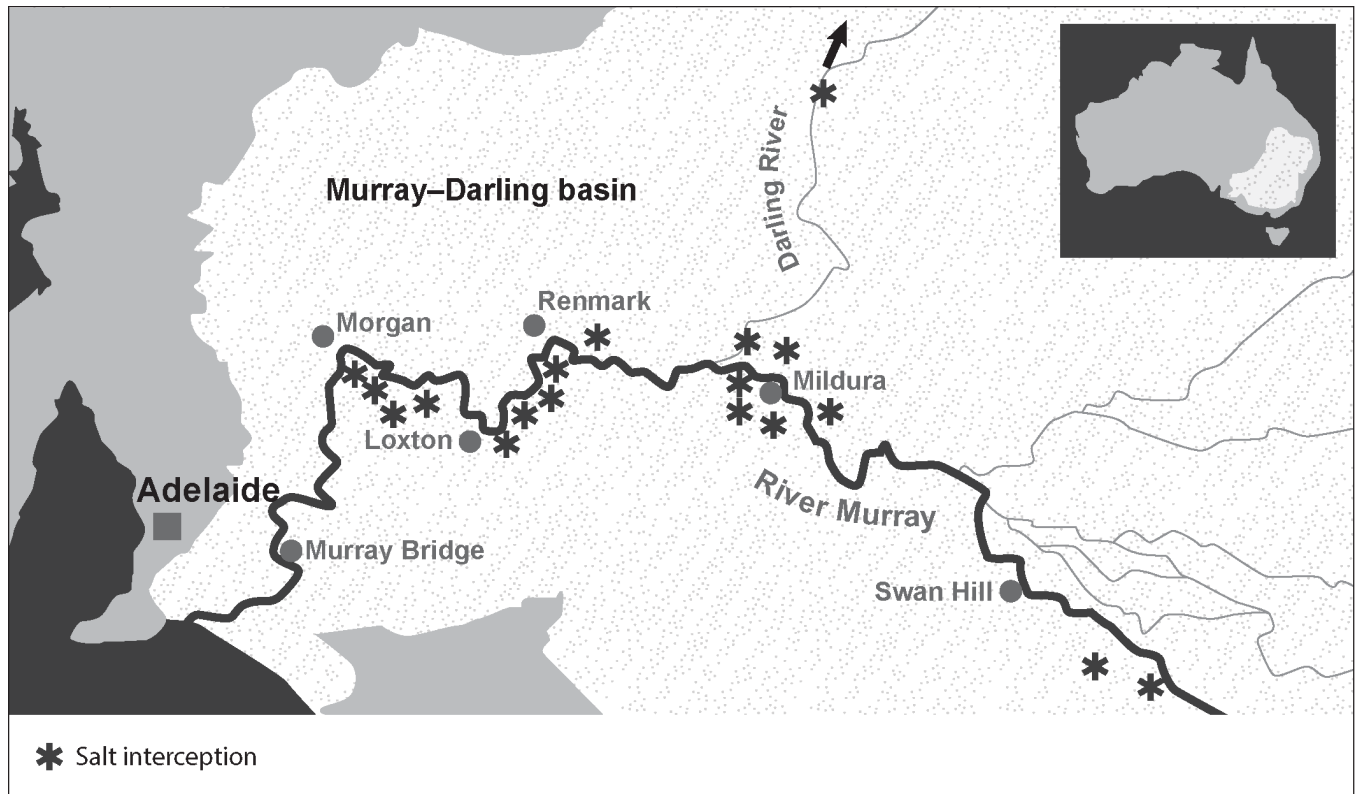


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## Stimulus 4

A salt interception scheme has been implemented for the Murray–Darling basin river system since 1975. Under this scheme, releases of water occur after large rainfall events.

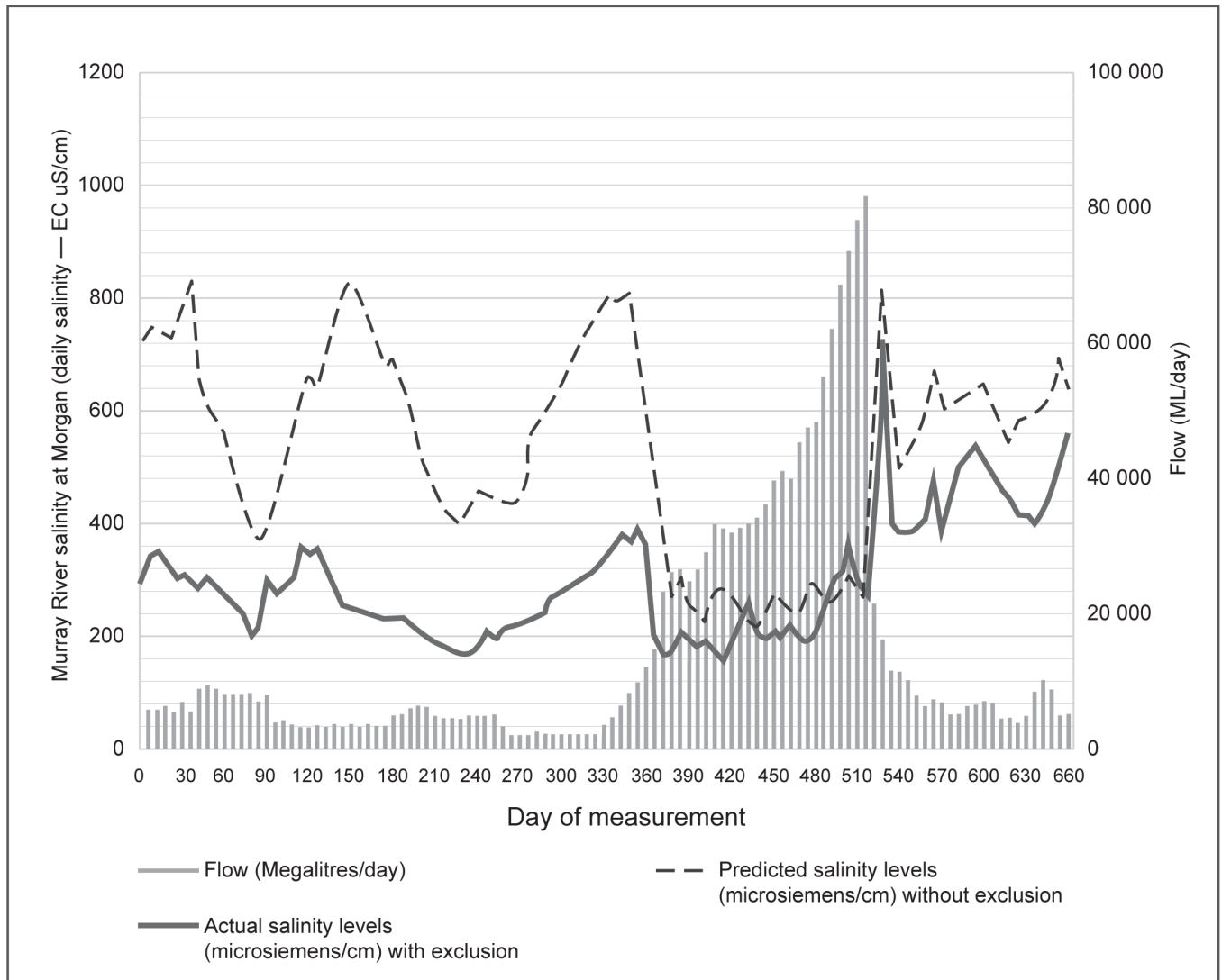
The salt interception scheme removes saline water before it can enter the Murray River. The map below shows locations where salt interception takes place.



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## Stimulus 5

Murray River salinity levels were recorded every six days at Morgan across two years. The graph below shows the flow rate measured on the day, the actual recorded salinity level and the predicted salinity level without the salt interception scheme.



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## References

### Stimulus 1

World Wildlife Fund 2018, ‘Half of plant and animal species at risk from climate change’, [www.panda.org/?324571/Half-of-plant-and-animal-species-at-risk-from-climate-change](http://www.panda.org/?324571/Half-of-plant-and-animal-species-at-risk-from-climate-change).  
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### Stimulus 2

Commonwealth of Australia, Bureau of Meteorology 2008, ‘Average annual number of tropical cyclones’, [www.bom.gov.au/climate/maps/averages/tropical-cyclones](http://www.bom.gov.au/climate/maps/averages/tropical-cyclones).  
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### Stimulus 3

Commonwealth of Australia, Bureau of Meteorology 2018, ‘Tropical cyclone trends’, [www.bom.gov.au/cyclone/climatology/trends.shtml](http://www.bom.gov.au/cyclone/climatology/trends.shtml).  
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### Stimulus 4

Figure derived from Commonwealth of Australia, Murray–Darling Basin Authority 2015, ‘Salt inception scheme map’, [www.mdba.gov.au/managing-water/salinity](http://www.mdba.gov.au/managing-water/salinity).  
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### Stimulus 5

Graph adapted from Figure 2, page 8 of *Basin Salinity Management 2030: 2017–18 Status report*, Murray–Darling Basin Authority, Canberra, 2019. Licensed under CC BY 4.0, <https://creativecommons.org/licenses/by/4.0>.



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